

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claim 1 (Currently amended): A mounting process simulation program on a computer that executes a simulation of a mounting process composed of a plurality of steps comprising a solder printing step, a part mounting step and a reflow step, the program causing the computer to execute:

~~a first simulation executing step of executing a simulation based on a first condition selected for a first step;~~

~~a simulation condition deciding step of selecting a simulated result from the first simulation executing step as a simulation condition for a second step positioned subsequent to the first step; and~~

~~a second simulation executing step of executing a simulation of the second step based on a second condition comprising the simulation condition and at least a third condition that yields a second simulation result that is displayed on a display device;~~

~~wherein the first simulation executing step and the second simulation executing step are each directed to different successive steps in the plurality of steps composing the mounting process,~~

~~wherein analysis result data analyzed based on a plurality of conditions are generated at every step, and~~

~~the second simulation executing step executes the simulation of the second step by sampling the analysis result data generated based on the second condition.~~

a solder printing simulation executing step of executing a simulation based on a solder printing condition selected for the solder printing step;

a part mounting simulation condition deciding step of selecting a simulated result from the solder printing simulation executing step as a part mounting simulation condition;

a part mounting simulation executing step of executing a simulation of the part mounting step based on a part mounting condition comprising the part mounting simulation condition;

a reflow simulation condition deciding step of selecting a simulated result from the part mounting simulation executing step as a reflow simulation condition; and

a reflow simulation executing step of executing a simulation of the reflow step
based on a reflow condition comprising the part mounting simulation condition and
the reflow simulation condition.

Claim 2 (Cancelled):

Claim 3 (Currently amended): A mounting process simulation program
according to claim 1, wherein ~~no analysis result data analyzed based on a plurality of~~
~~conditions are generated at every step, and~~

the ~~second-part mounting~~ simulation executing step executes the simulation of
the ~~second-part mounting~~ step by executing an interpolation calculation using analysis
result data analyzed based on a preceding or succeeding condition of the ~~second-part~~
mounting condition.

Claim 4 (Currently amended): A mounting process simulation program
according to claim 1, wherein the ~~second-part mounting~~ simulation executing step

executes the simulation of the ~~second-part mounting~~ step by converting the analysis result data generated by other device into a predetermined data format.

Claim 5 (Previously presented): A mounting process simulation program according to claim 4, wherein at least one of the following types of data are generated by an external system and is selected as the analysis result data: data simulated previously at every step via a CAE tool, mounting resultant data from a mounting equipment provided to a mounting site at every step, the mounting resultant data comprising fraction defective data and production results; and experimental data derived by an experiment in which an operation in each step is supposed;

wherein the type of data selected as the analysis result data is converted to the predetermined data format.

Claim 6 (Currently amended): A mounting process simulation program according to claim 1, further comprising an animation displaying step of displaying three-dimensionally an animation to indicate a result simulated in the ~~second-part mounting~~ simulation executing step on a display device, by reading previously-stored

animation elements based on a definition file in which an operation sequence is defined at every step.

Claim 7 (Currently amended): A mounting process simulation program according to claim 1, wherein the ~~second-part mounting~~ simulation executing step includes a condition acquiring step of reading a condition selected in response to an input from a condition database in which a plurality of conditions are stored previously in combination, and adding the condition to the ~~second-part mounting~~ condition.

Claim 8 (Currently amended): A mounting process simulation program according to claim 7, wherein the condition acquiring step further reads data from a CAD system in response to the input and adds the data to the ~~second-part mounting~~ condition.

Claim 9 (Currently amended): A mounting process simulation program according to claim 1, wherein the ~~first-solder printing~~ simulation executing step

executes the simulation to contain production variation in the first-solder printing step,

the part mounting simulation condition deciding step decides the result simulated in the first-solder printing simulation executing step to contain the production variation as the part mounting simulation condition, and

the ~~second-part mounting~~ simulation executing step executes the simulation of the ~~second-part mounting~~ step based on the ~~second-part mounting~~ condition which contains the production variation.

Claim 10 (Currently amended): A mounting process simulation program according to claim 1, wherein the first-solder printing simulation executing step executes the simulation based on a change of a control item set in the first-solder printing step as the first-solder printing condition,

the part mounting simulation condition deciding step decides the result simulated based on the change of the control item in the first-solder printing simulation executing step as the simulation control, and

the ~~second-part mounting~~ simulation executing step executes the simulation of the ~~second-part mounting~~ step based on the ~~second-part mounting~~ condition which contains the result simulated based on at least the change of the control item.

Claim 11 (Currently amended): A mounting process simulation program according to claim 1, further causing the computer to execute a reliability evaluating step of executing a reliability evaluation of a product manufactured in the mounting process by using the result simulated in the ~~second-part mounting~~ simulation executing step.

Claim 12 (Currently amended): A mounting process simulation program according to claim 1, further causing the computer to execute a fraction defective calculating step of calculating a fraction defective of a product manufactured in the ~~first-solder printing~~ step and the ~~second-part mounting~~ step, by using results which were simulated in the ~~first-solder printing~~ simulation executing step and the ~~second-part mounting~~ simulation executing step.

Claim 13 (Currently amended): A mounting process simulation system provided to steps of a mounting process composed of a plurality of steps comprising a solder printing step, a part mounting step and a reflow step to execute a simulation of the mounting process, comprising:

an inputting portion for inputting a plurality of conditions to execute the simulation;

an executing portion for executing the simulation based on condition input from the inputting portion; and

an outputting portion for outputting a result of the simulation executed by the executing portion;

wherein the executing portion includes:

a condition table forming portion that forms a condition table that lists a simulation condition of a ~~second~~part mounting step positioned subsequently to a ~~first~~ solder printing step, whereby the condition table is formed by using a simulation result simulated based on a ~~first~~solder printing condition selected for at least a ~~first~~ solder printing step, and

a simulation result outputting portion that executes the simulation of the ~~second-part mounting~~ step based on condition data from the condition table and a condition input from the inputting portion and outputs a result to the outputting portion,

wherein analysis result data analyzed based on a plurality of conditions are generated at every step, and

the executing portion executes the simulation of the ~~second-part mounting~~ step by sampling the analysis result data generated based on the simulation condition.

Claim 14 (Currently amended): A mounting process simulation method of executing a simulation of a mounting process composed of a plurality of steps comprising:

a ~~first-solder printing~~ simulation executing step of executing a simulation based on a ~~first-solder printing~~ condition selected for a ~~first-solder printing~~ step to yield a ~~first-solder printing~~ result;

a ~~part mounting~~ simulation condition deciding step of selecting the ~~first-solder printing~~ result from the ~~first-solder printing~~ simulation executing step as a simulation

condition for a ~~second-part mounting~~ step performed subsequent and in succession with respect to the ~~first-solder printing~~ step; and

a ~~second-part mounting~~ simulation executing step of executing a simulation of the ~~second-part mounting~~ step based on a ~~second-part mounting~~ condition containing at least the simulation condition and at least a ~~third-reflow~~ condition to yield a ~~second-part mounting~~ simulated result that is displayed on a display device,

wherein the ~~first-solder printing~~ simulation executing step and the ~~second-part mounting~~ simulation executing step are each directed to different and successive steps in the plurality of steps composing the mounting process,

wherein analysis result data analyzed based on a plurality of conditions are generated at every step, and

the ~~second-part mounting~~ simulation executing step executes the simulation of the ~~second-part mounting~~ step by sampling the analysis result data generated based on the ~~second-part mounting~~ condition.

Claim 15 (Currently amended): The mounting process simulation program according to claim 1, wherein the ~~first solder printing, second part mounting and third reflow~~ conditions are selected from a plurality of conditions.

Claim 16 (Previously presented): The mounting process simulation program according to claim 15, wherein the plurality of conditions comprises solder conditions, printing mask conditions, printing device conditions, substrate conditions, mounting device conditions, solder printing conditions, parts conditions, and reflow furnace conditions.

Claim 17 (Currently amended): The mounting process simulation method according to claim 14, wherein the ~~first solder printing, second part mounting and third reflow~~ conditions are selected from a plurality of conditions.

Claim 18 (Previously presented): The mounting process simulation method according to claim 17, wherein the plurality of conditions comprises solder conditions, printing mask conditions, printing device conditions, substrate conditions,

mounting device conditions, solder printing conditions, parts conditions, and reflow furnace conditions.

Claim 19 (Currently amended): The mounting process simulation method according to claim 17 further comprises displaying the ~~second~~-part mounting simulated result as a three-dimensional animation by reading previously-stored animation elements based on a definition file in which an operation sequence is defined at every step.